PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Ernesto Lasalandra et al.
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For	:	MULTIPLE-THRESHOLD MULTIDIRECTIONAL INERTIAL DEVICE
Examiner	:	Adi Amrany
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Commissioner for Patents
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APPELLANT'S REPLY BRIEF

Commissioner for Patents:

This brief is in furtherance of the Appeal Brief, filed in this case on June 17, 2010 (hereafter, *Brief*), and is in response to the Examiner's Answer, mailed on August 30, 2010 (hereafter, *Answer*). Please charge any fees necessary for the acceptance of this Reply Brief to Deposit Account No. 19-1090.

I. Introduction

Most of the arguments raised by the Examiner in the Answer are repetitions of previously made arguments, and were adequately addressed in the Brief. Appellants arguments will be limited to responding to two issues in the present Reply, because of the extent of the discussion relating to these two issues. While there will remain a few minor arguments that will not be addressed, Appellants believe that, in view of the arguments provided here and in the Brief, it will be apparent that those arguments are inapposite or in error.

First, in rejecting many of the claims, the Examiner now argues that Woehrl et al.[1] teaches or suggests a second embodiment for activating a seatbelt tightening mechanism, and that when employed for this purpose, it would be obvious to modify the disclosed circuit by changing or eliminating many of the features that are required "only in the embodiment of airbag deployment."[2] On this basis, the Examiner justifies the modifications necessary to meet limitations of each of the independent claims. Appellants believe that the Examiner's characterization of an alternate embodiment of Woehrl is in error, and cannot support the claim rejections.

Second, "[t]he Examiner now maintains that the L3 signal is the primary trigger signal [of Woehrl's circuit] and the remaining signals … are used to disqualify the trigger signal if the acceleration event … does not warrant an airbag deployment."[3] The Examiner relies on this interpretation to support pointing to the conductor L3 or its signal as corresponding to at least one element of each of the independent claims. Appellants believe that the Examiner's characterization of Woehrl's circuit, and in particular of the conductor L3, is in error, and cannot support the claim rejections.

Because the two issues outlined above are each central to the rejections of every one of the independent claims, and because, if an independent claim is allowable, all of its dependent claims are by definition allowable over the prior art, the rejections of all of the claims are overcome if the Examiner is found to be in error with respect to either one of these issues.

II. Woehrl does not disclose a separate embodiment for triggering a seatbelt tightening device.

In the Brief, Appellants presented various arguments to show that Woehrl cannot be modified as proposed by the Examiner in rejecting claims 1, 9, 10, 13, 21, 28, and 29 because Woehrl teaches away from the proposed combinations, and because such modifications would not operate according to Woehrl's established function, would change Woehlr's principal of

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[1] U.S. Patent No. 5,173,614, hereafter, *Woehrl*.

[2] *Answer*, 17:6-7 (i.e., page 17, lines 6-7) (Where specific passages in the Answer or the Brief are pointed to, it will be by page and line number separated by a colon. Likewise, specific references to passages of Woehrl will be by column and line numbers, separated by a colon.).

[3] *Id.*, 15:6-9.

operation, and/or would render Woehrl unsatisfactory for its intended purpose.[4] In general, the Examiner agrees with Appellants' arguments, as they apply to an air bag trigger device, but argues that the proposed modifications would be appropriate and obvious with regard to circuits intended for purposes other than triggering air bags, such as for a seatbelt tightening device.[5]

In order to reject independent claims 1, 9, 10, 28, and 29, the Examiner proposes modifying Woehrl's circuit by combining Woehrl with the Applicants' admitted prior art (APA) to provide a signal responsive to the absolute value of an acceleration. Additionally, in rejecting claims 1, 9, 10, 13, 21, 28, and 29, the Examiner points to Woehrl's conductor L3 or its corresponding signal as corresponding, variously, to the first recognition signal of claims 1, 10, 13, 21, 28, and 29, the output terminal of claims 9, 10, 13, and 28, and the reactivation signal of claim 9. In both of these cases, the Examiner justifies the resulting modifications on the basis that Woehrl teaches other embodiments, including a different configuration for triggering a seatbelt tightening device.[6] In this regard, the Examiner argues that:

- events that would disqualify an airbag deployment may be useful in tightening a seatbelt. For example, while a bumpy road would not trigger airbag deployment (col. 3, lines 1-6), it would be beneficial to tighten a seatbelt in this situation. Therefore, it would be obvious that in non-airbag deployment embodiments, some or all of the Woehrl validating circuits may not be needed.[7]
- Appellants contend that "Woehrl cannot supply recognition signals in response to the absolute value of acceleration while also differentiating between positive and negative acceleration. The Examiner agrees with this statement, but only in the embodiment of airbag deployment…. [W]hen using the acceleration circuit in a seatbelt tightening device (or any other acceleration-based function), it may be beneficial to include negative acceleration values.[8]
- if the acceleration sensors were used with a different device (such as a seatbelt tightening device), the benefits of including rear acceleration signals would be obvious. Since the Woehrl inertial sensor is not limited to airbag

[4] See *Brief*, 4:5-10, 36:11-18, 38:7-9, 38:17, 40:2-4, 42:23-28, and 43:18-20.

[5] See, *e.g.*, *Answer*, 15:22-16:8, and see, also passages cited in footnote 6.

[6] See, *id.*, 13:11-13, 15:16-20, 15:22-16:8, 17:4-12, 17:17-18:2, 18:7-10, 18:21-19:2, 20:16-21:3, 22:7-10 and 14-16, 23:6-9, 24:8-15, 26:6-11, and 27:7-10.

[7] *Id.*, 16:4-8

[8] *Id.*, 17:4-12.

deployment, combining Woehrl with Appellants' admitted prior art would not frustrate Woehrl's explicitly stated intent.[9]

- Woehrl discloses using the sensor for a seatbelt tightening device. One skilled in the art would recognize the functions provided by the Woehrl circuitry and would be able to change/omit certain circuit paths and logic gates in order to allow the recognition signal L3 to trigger the device under proper acceleration conditions.[10]
- The Woehrl inertial sensor is not limited to airbag deployment. Therefore, the reference provides the motivation to modify the circuit. And, as shown above, providing absolute values to the threshold switches (41, 41', 51, 51') is not a "radical" modification.[11]
- One skilled in the art would be motivated to use the Woehrl two-threshold acceleration circuit in any device that would expect an angled impact, including seatbelt tightening devices. As demonstrated above, one skilled in the art would be motivated to change or remove the validating circuits from the system and compare the magnitude of acceleration signals (i.e. absolute values) to allow the recognition signal L3 to activate the trigger signal TS to control a seatbelt tightening device.[12]
- if [Woehrl's] device were not an airbag (a seatbelt tightening device, for example), [the] validating circuit may not be needed and L3 could be used to trigger the device directly.[13]
- One skilled in the art would modify the Woehrl sensor, since as discussed above, the validating signals to cancel L3 are mainly used for controlling airbag deployment. Other devices, such as a seatbelt tightening device, would require a change or removal of the validating circuits.[14]

In supporting these varied arguments, the Examiner points to a single passage of Woehrl's abstract, lines 1-3,[15] which states that "[a] crash sensor is constructed for triggering a passive safety device, such as an air bag or a seat belt tightening device." On the basis of this single passage, the Examiner infers at least one additional embodiment of Woehrl, in which: the validation circuits may not be needed; the benefits of including rear acceleration signals would be obvious; one skilled in the art would be able to change/omit certain circuit paths and logic gates in order to allow the recognition signal L3 to trigger the device; one skilled in the art would be motivated to change or remove the validating circuits from the system and compare the

[9] *Id.*, 17:21-18:2.
[10] *Id.*, 18:7-10.
[11] *Id.*, 19:1-4.
[12] *Id.*, 20:19-21:3.
[13] *Id.*, 24:13-15.
[14] *Id.*, 27:7-10.
[15] *Id.*, 13:13-14.

absolute values of acceleration signals to allow the recognition signal L3 to activate the trigger signal TS; and a change or removal of the validating circuits would be required in applications other than air bag deployment.[16]

Appellants disagree with the Examiner, and believe that each of the arguments presented is in error, lacking any support in Woehrl. Appellants note that, while the Examiner points to a sentence of the abstract for support of a separate embodiment, there is no mention in the quoted passage of another embodiment. Woehrl refers to a seatbelt tightening mechanism once more in the disclosure, in the first paragraph of the detailed description, at which Woehrl states:

> The impact sensor system 1 according to the invention comprises two individual, directional impact sensors 2 and 3 of conventional construction.... The safety devices to be triggered, such as an air bag or a seat belt tightening mechanism are not shown, since they are conventional.[17]

From this passage and from the abstract it can be seen that Woehrl does not contemplate a separate embodiment having a radically different configuration for use with a seatbelt tightening device as suggested by the Examiner, but instead envisions a single device/embodiment for triggering a safety device, "such as an air bag or a seat belt tightening mechanism." The seatbelt tightening device and the air bag trigger are mentioned by Woehrl as examples of safety devices for which the disclosed circuit might be used. They are not listed as separate embodiments, or as devices requiring separate embodiments. The term *seatbelt tightening device* (or *mechanism*) appears twice in Woehrl's disclosure, once in the abstract and once in the first paragraph of the detailed description. In each case, the text describes a *safety device* such as an air bag or seatbelt tightening device. Woehrl mentions an air bag seven times: the two references noted above, once more in the abstract,[18] once in the field of the invention, and three times in the summary of the invention.[19] In each case, it is clear from the context that the air bag is mentioned as an example of a passive safety device that might be triggered by the same disclosed circuit.

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[16] See footnotes 7, 9, 10, 12, 13, and 14.
[17] *Woehrl*, 4:52-65, emphasis added.
[18] *Id.*, abstract, line 6.
[19] *Id.*, 1:8; 2:25; 3:61; 4:11.

While it is clear from the references in the abstract and summary that Woehrl regards as a particular benefit of its device the prevention of unnecessary deployments of an air bag, probably because of the expense and danger associated with such a deployment, Woehrl's overall intent and purpose is to disclose a circuit that will trigger a safety device, without limitation to the type of device, and that is capable of identifying specific, narrowly defined circumstances under which the device should be triggered. In the detailed description of its single disclosed embodiment, Woehrl mentions an air bag and a seatbelt tightening mechanism exactly once each, in the first paragraph. Meanwhile, Woehrl refers generically to a *safety device* 15 times in the detailed description alone. Thus, it is clear that Woehrl's circuit is not intended exclusively for triggering air bags, as argued by the Examiner, nor does Woehrl provide for a different embodiment for triggering a seatbelt tightening device. Woehrl is directed to the specific circuit, not the different devices with which it is to be employed.

This is clear, in particular, with reference to Woehrl's Background Information and Objects of the Invention. In the background, Woehrl describes an earlier device that is "quite satisfactory for its intended purpose, but it cannot distinguish between rear impacts and lateral impacts on the one hand and front or slanted impacts on the other hand."[20] Woehrl briefly describes the operation of the earlier device, and provides an example of a circumstance in which "at least one lower threshold value in one channel is not exceeded so that in that instance the safety device is not triggered. Thus, the ability of the known impact sensor to distinguish between different types of impacts is limited."[21] Woehrl then states that:

> In view of the foregoing it is the aim of the invention to achieve the following objects singly or in combination: to construct an impact sensor of the above type in such a way that it can reliably distinguish between different types of impacts including frontal impacts, lateral impacts, angular impacts, and rear impacts, as well as relatively small impacts, such as a hammer blow in a repair shop; … and to provide a sensor which is also easily adaptable to different types of vehicles.[22]

On the basis of this explanation, it is very clear that Woehrl is less concerned about what safety device is to be triggered, and more concerned with the ability of its circuit to *reliable distinguish between different types of impacts*. Woehrl discloses one single

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[20] *Id.*, 1:30-33.
[21] *Id.*, 1:39-43.
[22] *Id.*, 1:51-68, emphasis added.

embodiment, is entirely silent regarding any additional embodiments, refers to specific safety devices only as examples of devices that might advantageously be used with its device, and expressly stresses the importance of a device that can reliably distinguish between different types of impacts. The Embodiment envisioned by the Examiner would be incapable of distinguishing between most types of impacts. There is clearly no basis for inferring any embodiment that would not be capable of performing as according to the express disclosed objectives. Contrary to the Examiner's arguments, Woehrl cannot support a rejection on the basis of such an embodiment.

The Examiner further supports his alternate embodiment theory by arguing that a seatbelt tightening device would require different activation parameters, *e.g.*, bumpy roads and negative accelerations. There is no support for this argument. Regarding "bumpy roads," Appellants note that Woehrl provides only two sensors (2 and 3), neither of which is configured to detect vertical acceleration,[23] so the vertical component of the bumps would be ignored in any event. The remaining components of an acceleration can be separated into forward and reverse accelerations. With regard to reverse, *i.e.*, negative, accelerations, these accelerations, such as would occur with a rear-end collision, will tend to push a vehicle occupant deeper into the seat. Because the occupant is pushed more firmly into the seat, tightening a seatbelt would be redundant. With regard to positive accelerations, Woehrl's disclosed circuit does not require any modification to appropriately trigger a seatbelt tightening device, beyond appropriate selection of thresholds.[24] Thus, Woehrl's objective of distinguishing between negative and positive accelerations is equally applicable to both air bags and seatbelts.

The Examiner argues that "[o]ne skilled in the art would be motivated to use the Woehrl two-threshold acceleration circuit in any device that would expect an angled impact, including seatbelt tightening devices."[25] Woehrl does not teach the benefits of triggering in response to an angled impact, such as might motivate one to adopt its "two-threshold acceleration circuit." The only support for the Examiner's argument is found in the disclosure of the present application. Woehrl's circuit is designed so that "the safety device is deployed only

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[23] See *Woehrl*, Figure 1 and 4:52-62.

[24] Woehrl provides for threshold selection according to the particular requirements (see, *e.g.*, 2:29-34, 5:28-32, 7:27-30).

[25] *Answer*, 20:19-21.

if a frontal impact has been recognized."[26] Thus, angled impacts are largely ignored. There is not a single circumstance under which Woehrl's circuit, as disclosed, will produce a trigger signal unless both its sensors detect a positive impact of sufficient magnitude.[27] Referring to Woehrl's Figure 1, the sensing axes of its two impact sensors are shown at A_2 and A_3.[28] It can be seen that each of the sensing axes is oriented at 45 degrees relative to the travel direction of the vehicle and at right angles to each other. Thus, its primary detection axis is along the central longitudinal axis 4' of the vehicle.[29] An impact occurring along this axis would not be considered an angled impact of the vehicle, but a straight impact. Because each sensor must detect a positive-value impact to produce a trigger, an impact exactly along the axis A_2, for example, will not produce a trigger signal, because it will be detected by the sensor 2 but not by the sensor 3. While some frontal impacts that occur at some small slant relative to the travel direction will produce a trigger signal, they must be close enough to the direction of travel to produce a sufficiently strong positive signal in both channels. All other impacts, extending through more than 170 degrees, will be ignored. Thus, one of skill in the art would not be led by Woehrl's disclosure to recognize any benefits or advantages of employing a small portion of Woehrl's circuit to improve the detection of angled impacts around 360 degrees, but would recognize the benefit of the entire circuit in better distinguishing a narrow range of impacts centered along the direction of travel from all other impacts.

The proposed alternate embodiment is in direct opposition to Woehrl's explicit objectives and clear intent. Woehrl does not teach, nor would it be obvious, to modify its circuit when used with devices other than an air bag trigger, and a reference in Woehrl's disclosure to other safety devices such as seatbelt tightening mechanisms does not suggest or make obvious a very different and wholly undisclosed circuit. There is no support for the Examiner's proposed second embodiment of Woehrl.

Finally, Appellants note that the Examiner agrees with Appellants that the circuit disclosed by Woehrl cannot supply recognition signals in response to the absolute value of

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[26] *Woehrl*, Abstract, last line.
[27] See *Id.*, 5:62-66.
[28] See *Id.*, 4:52-62.
[29] See *Id.*, 4:60-62.

acceleration while also differentiating between positive and negative acceleration.[30] Because Woehrl does not support another embodiment, the Examiner's admission is sufficient to overcome the rejections of at least independent claims 1, 9, 10, 28, and 29, each of which recites limitations that correspond to the absolute value of an acceleration signal.

III. The signal at Woehrl's conductor L3 is not the primary trigger signal of Woehrl's device and does not correspond to a recognition signal or reactivation signal, nor would it be obvious to label the conductor L3 as the output of Woehrl's device.

In rejecting the independent claims, the Examiner points to the conductor L3 or its signal as corresponding, variously, to the first recognition signal of claims 1, 10, 13, 21, 28, and 29, the output terminal of claims 9, 10, 13, and 28, and the reactivation signal of claim 9. Appellants believe that the Examiner's characterization of Woehrl's circuit, and in particular of the conductor L3, is in error, and cannot support the claim rejections.

The Examiner presents a large number of arguments in support of the reliance on L3 to reject the claims, among which are the following.

A. The Examiner erroneously justifies modifications to Woehrl on the basis of an alleged embodiment for seatbelt devices, suggests that the modifications are relatively minor and therefore obvious, and unreasonably relies on hindsight reasoning to make the modifications.

The Examiner argues that:

> Woehrl discloses using the sensor for a seatbelt tightening device. One skilled in the art would recognize the functions provided by the Woehrl circuitry and would be able to change/omit certain circuit paths and logic gates in order to allow the recognition signal L3 to trigger the device under proper acceleration conditions.
>
> For example, using the Woehrl L3 signal as the claimed "recognition signal," in order to modify the reference to meet the limitation of using "absolute values," one skilled in the art would only need to remove the subtraction node (10, 10') and configure the threshold switch circuits (41, 41', 51, 51') to compare both the positive and negative values to a threshold level. The rest of the circuitry (all of the logic gates of Woehrl figure 2A) is immaterial, since the "recognition

[30] *Id.*, 17:4-7.

> signal" has already been generated at L3. One skilled in the art could leave them, modify them or delete them. Their use is immaterial, since the recognition signal has already been generated.[31]

Here, the Examiner justifies the use of the L3 signal as a trigger on the basis that Woehrl discloses using the sensor for a seatbelt tightening device. It has already been shown that its use with a seatbelt tightening device does not require a different embodiment and cannot justify the modifications of Woehrl's circuit proposed by the Examiner. With regard to the proposed modifications, the Examiner minimizes their extent, but Appellants note that every component shown in Woehrl's Figure 2B, with the exception of the OR gate 44, would be eliminated, that of the fifty components shown in Figure 2A, all but seventeen would be eliminated, and that four of the remaining seventeen would be "reconfigured." Such a modification would certainly change the circuit's principle of operation, and would render it unsatisfactory for Woehrl's intended purpose.

Finally, the Examiner appears to justify the modification, at least in part, as being *for the purpose of meeting the limitations of the claim*. This is evidenced, in particular, by a portion of the text quoted above, in which the Examiner states that, "using the Woehrl L3 signal as the claimed 'recognition signal,' in order to modify the reference to meet the limitation of using 'absolute values,' one skilled in the art would only need to …." As appellants understand this statement, the reasoning employed to reject claim 1 as obvious is as follows: based on a comparison of claim 1 to Woehrl's circuit, the signal at the conductor L3 is selected as representing the point in the circuit whose upstream signal paths most closely approach the elements recited in claim 1. Then the question is asked, whether one of ordinary skill in the art could reproduce the claimed invention from that point, using known elements and operations. Thus, the elements supporting the rejection are assembled specifically to meet the limitations of the claim, rather than providing a reasonable showing that one of ordinary skill would have found the claimed invention to be obvious in the absence of claim 1.

In *W.L. Gore & Associates, Inc. v. Garlock, Inc.*,[32] following a district court ruling of invalidity of claims asserted in an infringement action, the CAFC reversed the lower

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[31] *Woehrl*, 18:7-18.

[32] 721 F.2d 1540, 1553, 220 U.S.P.Q. 303 (1983).

court, pointing to various elements of the claimed invention that were found in separate references and combined by the lower court to show obviousness, and stated that:

> [t]he result is that the claims were used as a frame, and individual, naked parts of separate prior art references were employed as a mosaic to recreate a facsimile of the claimed invention. At no point did the district court … explain why that mosaic would have been obvious to one skilled in the art in 1969, or what there was in the prior art that would have caused those skilled in the art to disregard the teachings there found against making just such a mosaic.[33]

In the present case the Examiner has likewise assembled such a mosaic, combining selected portions of Woehrl, which is directed to a circuit for triggering safety devices of automobiles, with the APA, which is related to circuits for activating a portable electronic device from standby following a period of inactivity. Having defined the elements to be combined, the Examiner supports the obviousness rejection by positing a nonexistent and radically different embodiment of Woehrl while dismissing more than three-quarters of Woehrl's single disclosed embodiment as "immaterial," along with Woehrl's explicit objectives and benefits. The Examiner also fails to point to any teaching in any reference to show "what there was in the prior art that would have caused those skilled in the art to disregard the teachings there found against making just such a mosaic."[34]

It is clearly evident that the Examiner has "[fallen] victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher."[35]

B. <u>The Examiner erroneously points to L3 as the primary or main signal, incorrectly relying in part on an alleged admission by Appellants, and incorrectly states that Woehrl states that L3 is capable of triggering the airbag by itself.</u>

As stated by the Examiner:

> The Examiner maintains that the L3 signal is the primary trigger signal and the remaining signals … are used to disqualify the trigger signal if the

[33] *Gore*, 721 F.2d at 1552.
[34] See passage of *Gore* quoted supra.
[35] *Id.*, at 1553.

> acceleration event was really a minor event that does not warrant an airbag deployment.[36]

The Examiner also states:

> As demonstrated above and admitted by appellants (Brief, page 30, lines 15-16), the L3 signal is the main activation signal. The remaining signals serve to "validate" L3 and have the ability to cancel L3 if the acceleration event does not warrant triggering airbag deployment.[37]

Woehrl offers no teaching or suggestion that the L3 signal has any special status. On the contrary, to the extent there is any suggestion of a "primary" signal, that distinction belongs to the signal from the threshold switch 13 (or 13'). Woehrl describes the operation of its device, explaining:

> The circuit arrangement … operates as follows: Let it be assumed that the acceleration sensor 2 provides a non-symmetrical signal …. The resulting signal at 10 will be integrated in the integrating circuit 12. If now the integrated signal exceeds the threshold Sv2 at 13 (or 13'), then the output of the AND-gate 81 will provide a "high"-signal. The AND-gate 81, however, switches only for passing the signal on to the OR-gate 82 <u>if additionally the required signals appear at its other four inputs</u>.[38]

One of ordinary skill could read this passage as indicating that the signal at the threshold switch 13, at L1, is the primary signal, and that the signals at the remaining four inputs to the AND gate 81, *including the signal at L3*, merely "serve to validate" L1. In fact, Appellants do not believe that this passage is sufficient to decisively show that L1 is the primary signal, and instead believe that Woehrl does not hold any signal as being a primary signal, but instead provides a number of signals that cooperate to perform the intended function. Nevertheless, even if the quoted text is not definitive in showing a primary signal, it is sufficient to show that L3 is *not* the primary signal.

The Examiner is apparently of the opinion that in the event of any impact, Woehrl's signal L3 provides a threshold-controlled response to the impact while <u>all</u> of the remaining signals act to prevent the triggering of the safety device by L3 under circumstances that militate against such triggering, including, for example, minor impacts, negative impacts, lateral impacts, hammer blows in a shop, etc. On this basis, in part, the Examiner argues that L3

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[36] *Answer*, 15:6-9.
[37] *Answer*, 24:10-13.
[38] *Woehrl*, 8:60-9:4, emphasis added.

is the "main activation signal." For this condition to be true, it would be necessary to show by reference to Woehrl's disclosure that there are no circumstances under which L3 acts to block a trigger signal. In other words, there can be no condition under which, but for a failure of L3 to signal a trigger, the trigger signal TS would activate. The existence of such a potential blocking action by L3 would demonstrate that under at least that circumstance the L3 signal acts to "disqualify the trigger signal" produced by another signal path(s), and cannot, therefore, be regarded as the main activation signal. The Examiner has made no such showing, but has merely asserted this to be the case. Absent such a showing, the Examiner's assertions, without evidence, that the signal at L3 is the main activation signal, or the primary trigger signal, is not sufficient to demonstrate that one of ordinary skill would find it obvious to use the signal L3 to trigger the safety device directly, in embodiments where the other validating circuits are not required.[39]

The Examiner is in error regarding Appellants' alleged admission that the signal L3 is the main activation signal. The passage of the Brief to which the Examiner points is quoted below in context. The underlined portion is the specific passage cited by the Examiner:

> The Examiner's proposed modification would result in a single signal output at L3 responding equally to front or rear impacts. However, as previously explained, Woehrl deliberately separates and processes positive acceleration signals differently from negative signals. The negative signals are applied in the circuit to block activation of a trigger signal, to expressly prevent a negative acceleration from producing a trigger signal.[40]

This text clearly shows that, contrary to the Examiner's claim, Appellants did not admit that "the L3 signal is the main activation signal" nor that "the remaining signals" serve to validate L3. The Examiner is therefore in error in this regard.

The Examiner argues that:

> Woehrl disclose that the L3 signal is capable, by itself, of triggering the airbag. But because of the possibility of rear impacts or minor bumps, it would be beneficial to add logic gates to prevent L3 from triggering the air bag unless only a front impact is sensed (col. 9).[41]

The entire text of Woehrl's column 9 will not be quoted here, but based on a careful review of that text, Appellants are unable to find any teaching or suggestion by Woehrl

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[39] See *Answer*, 24:10-15.
[40] *Brief*, 30:12-16.
[41] *Answer*, 7:8-12.

that the L3 signal can, of itself, trigger the airbag, or that the benefits provided by the logic gates should be limited only to the applications in which the circuit is employed to trigger air bags. Appellants believe that under various scenarios, any given signal path, including the path of the conductor L3, might act to disqualify a trigger signal that otherwise would have been produced in response to signals at other paths. It is the Examiner's burden to adduce sufficient evidence to support any factual assertions on which a rejection is based. The Examiner has failed to present evidence to show that the signal L3 is the primary or main signal.

C. The Examiner incorrectly argues that the signal at L3 meets the claim limitations, and that L3 is an output terminal.

As stated by the Examiner:

> Claims 1, 9-10 and 28-29 recite creating a recognition signal, a limitation met by the Woehrl L3 signal.[42]

Claim 1 recites, in part, that "the first comparison means supply the first recognition signal when an absolute value of a first one of said acceleration signals is greater than the respective upper threshold, and when an absolute value of a second one of said acceleration signals is greater than the respective upper threshold, and the second comparison means supply the first recognition signal when the absolute value of any two of said acceleration signals are each greater than the respective lower thresholds." While their respective scopes all vary, each of claims 9, 10, 28, and 29 also include a limitation in which the absolute value of one or more acceleration signals is associated with the production of a recognition signal. The signal at Woehrl's L3 is produced only in response to positive value signals, and therefore does not meet the limitations of these claims.[43] The Examiner is therefore in error.

The Examine argues that:

> it would be obvious to label the output of logic gate (44) [as] the output of the inertial device. Woehrl disclose that the L3 signal is capable, by itself, of triggering the airbag. But because of the possibility of rear impacts or minor bumps, it would be beneficial to add logic gates to prevent L3 from triggering the air bag unless only a front impact is sensed. Therefore, Woehrl provides the motivation for labeling the output of OR gate 44 as the output of the device.

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[42] *Brief*, 13:21-22, see, also, 14:19-22.

[43] Note that the Examiner acknowledged this in the *Answer*, at 17:4-12.

> Further, as discussed above, just because the output of 44 is the output of "the device" does not disqualify the remaining logic gates from being part of "another device", where to two devices operate side by side.[44]

The Examiner argues that L3 is capable of triggering an airbag by itself, but that it would be beneficial to add logic gates to prevent deployment of an airbag unless a front impact is detected, and on this basis argues that it would be obvious to label the output of the logic gate 44 as the output of the device. The Examiner is in error.

First, from a strict electrical capacity question, the signal at the output of OR gate 44 would be capable of triggering the airbag if the circuit were so configured, but so would the signal from the output of every single logic gate provided in Woehrl's Figures 2A and 2B, by virtue of the fact that in a given circuit, all logic gates are typically operated to produce equivalent voltage levels to indicate high and low signals. However, this does nothing to support the Examiner's argument, because it does not show any particular motivation to label the output of gate 44 as the device output. Thus, Appellants do not believe that this is the reasoning on which the Examiner's statement is based, but understand the Examiner's argument to be that the circuit would function correctly if the output of gate 44 were employed to directly trigger the airbag. However, the Examiner's own argument acknowledges the benefits of the logic gates Woehrl uses to differentiate among the various impacts, and to permit the airbag to deploy only under specific conditions. In fact, as discussed above, Woehrl describes such differentiation as an objective of its device. If the gates were omitted, that objective would not be met, and the circuit would not function correctly. Likewise, if the signal at L3 were used to directly trigger an airbag, the circuit would not function correctly. Therefore, there is no motivation to change the signal L3 to be the output terminal of the device.

With regard to the second argument, there is no suggestion that Woehrl contemplates separating its device into two separate devices operating "side by side," in which the output of the gate 44 is the output of one of the devices. Furthermore, Appellants can find no reasonable configuration by which the components of the circuit shown in Figures 2A and 2B could be divided into two circuits with one single output from gate 44 in a first circuit coupled to an input of a second circuit. Instead, according to any configuration Appellants can devise, there

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[44] *Id.*, 7:13-15.

would be a thicket of conductors extending from respective output terminals of the first circuit to respective input terminals of the second circuit, in order to provide all of the connections along all of the signal paths shown. Even if some such configuration of Woehrl's circuit could reasonably be regarded as being two separate circuits, the multiplicity of output terminals would defeat the Examiner's argument that one would be motivated to label the output of gate 44 as the output of the claimed device, inasmuch as it would be equally reasonable to similarly label any one of the outputs of the first circuit. The Examiner's argument is little more than hypothetical speculation, and the Examiner has pointed to no evidence to support the position. For these reasons, the Examiner is in error in pointing to the output of Woehrl's gate 44 as corresponding to the claimed output terminal.

IV. Conclusion

Appellants believe that the Examiner has failed to adequately present and support a *prima facie* showing of obviousness of the independent claims for at least the reasons set forth above. Accordingly, the rejections are in error, and Appellants respectfully request a favorable decision.

Respectfully submitted,

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